Change History				
RFC	**Date**	**Description**	**Rev.**	**Approved By**
54	27 Jan 2025	Initial Release	A	Carolyn Small - QA

1.0 Identification of the substance/mixture/compound

1.1 Product identifier used on the label: Xenolite 800 NLE-S

1.2 Other means of identification: None

1.3 Recommended use of the substance/mixture/compound and restrictions on use:

1.3.1 Use: X-ray attenuation

1.3.2 Restrictions on use: None that are known

1.4 Details of the supplier of the Safety Data Sheet:

Lite Tech, LLC
975 Madison Avenue
Norristown, PA 19403
Telephone: (610) 650-8690
Fax: (610) 650 8694

1.5 Emergency Telephone Number: (416) 787-1945

2.0 Hazards Identification

2.1 Chemical Family: Filled Polymer Composition

2.2 Label Elements: Labeled as Xenolite 800 NLE-S

2.3 Other Hazards: N/A

2.4 Unknown Acute Toxicity: N/A

3.0 Composition/Information on Ingredients

3.1 Substances: This is a WHMIS controlled product, Class D2A.

3.2 Mixture: Ingredients

Name	Product identifier	Concentration	Concentration % per OSHA Standard 1910.1200 (i)(1)(iv)
Polyolefin elastomer	(CAS No) 26221-73-8	Trade Secret	3% to 7%
Samarium Oxide	(CAS No) 12060-58-1	Trade Secret	10% to 30%
Bismuth	(CAS No) 7440-69-9	Trade Secret	45% to 70%
Antioxidant	(CAS No) 6683-19-8	Trade Secret	0.1% to 1%
Polymer Binding Agent	(CAS No) 9016-00-6	Trade Secret	0.1% to 1%
Hydrocarbon Oil	(CAS No) 64742-01-4	Trade Secret	3% to 7%
Oleamide (Slip Agent)	(CAS No) 301-02-0	Trade Secret	0.1% to 1%
Carbon Black	(CAS No) 1333-86-4	Trade Secret	0.1% to 1%

3.3 Statement regarding the Concentration listed as “Trade Secret”: “Xenolite” is a registered trademark. Lite Tech has a patent for Xenolite 800 NLE-S and the exact chemical concentration directly impacts the performance of the product, which is proprietary and a key value proposition for the company.

4.0 First Aid Measures

4.1 Description of First Aid Measures

First aid measures after inhalation	No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air.
First aid measures after skin contact	The compound is not likely to be hazardous by skin contact but cleansing the skin after use is advisable. If molten polymer gets on the skin, cool rapidly with cold water. Do not attempt to peel the polymer from the skin. Obtain medical treatment for a thermal burn. In case of contact, wash the skin with soap and water.
First aid measures after eye contact	In case of contact, immediately flush the eyes with plenty of water for at least 15 minutes. Consult a physician.
First aid measures after ingestion	No specific intervention is indicated as the compound is not likely to be ingested. Consult a physician, if necessary.

4.2 Most Important Symptoms and Effects, both Acute and Delayed

POLYOLEFIN ELASTOMER

Symptoms/injuries after inhalation	Polymer/elastomer compounds are not respirable as marketed. At processing temperatures above 204°C, fumes irritating to the eyes, nose, and throat may be produced. Exposure may result in redness, tearing, and itching in the eyes together with soreness in the nose and throat with coughing.
Symptoms/injuries after skin contact	No data is available. However, based on experience with handling these polymers/elastomers, no unusual dermatitis hazard is expected from routine handling. Molten polymer/elastomer contacting the skin will cause thermal burns.
Symptoms/injuries after eye contact	Mechanical irritation
Symptoms/injuries after ingestion	The oral LD-50 in rats using one type of polyolefin elastomer is in excess of 1000 mg/kg of body weight. Two-week metabolic tests with dogs and rats showed no significant amount of polyolefin elastomer was retained by the animals. Two types of polyolefin elastomer were fed to rats for 90 days at the 5% and 10% level in the diet. No gross pathological changes were found. Polyolefin elastomer resins have low toxicity.
Chronic Effects	No compound related effects were seen at the 50-ppm level.
Medical Conditions Aggravated by Exposure	None known
Additional Information	None of the compounds present in the polymer/elastomer at concentrations > 0.1% are listed by the IARC, NTP, OSHA, or ACGIH as a carcinogen.

HYDROCARBON OIL

Symptoms/injuries after inhalation	Not sufficiently volatile to present a hazard from vapor inhalation under normal use. High temperatures may cause symptoms of respiratory tract irritation.
Symptoms/injuries after skin contact	Prolonged or repeated skin exposure to liquid hydrocarbon oil may cause dry skin, irritation, and acne.
Symptoms/injuries after eye contact	May cause eye irritation.
Symptoms/injuries after ingestion	Hydrocarbon lubricating oils have a low to moderate oral toxicity, with overexposure. Vomiting due to irritation of the digestive tract is common. Keep the airway clear.
Chronic Effects	No information is available.
Additional Information:	This product is not considered a carcinogen or to have reproductive effects by the IARC, NTP, and ACGIH. Animal Data: Oral LD50: > 15,000 mg/kg in rats

SAMARIUM OXIDE

Symptoms/injuries after inhalation	Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patent warm. Seek immediate medical advice.
Symptoms/injuries after skin contact	Immediately wash with soap and water; rinse thoroughly. Seek immediate medical advice.
Symptoms/injuries after eye contact	In powder form, it is a skin, eye, nose, and throat irritant. It is untested for animal sensitization.
Symptoms/injuries after ingestion	Seek medical treatment.
Chronic Effects	No information is available.
Additional Information:	Not listed as a carcinogen by the IARC, NTP, or OSHA. Not reported as a mutagen or with genetic effects. ACUTE TOXICITY – No reported effects

BISMUTH

Symptoms/injuries after inhalation	Compound is not respirable as marketed. In powder form, exposure to dust or fumes may cause foul breath, metallic taste, or gingivitis.
Symptoms/injuries after skin contact	In powder form, dust may irritate the skin, with possible exfoliate dermatitis on the skin.
Symptoms/injuries after eye contact	In powder form, dust may irritate the eyes.
Symptoms/injuries after ingestion	Stomatitis, diarrhea, headache, fever, and rheumatic pains.
Chronic Effects	Available data on bismuth metal exposure is limited. Studies have shown that chronic exposure may result in anemia, “lead line” on the gums, and possible ulcerative stomatitis.
Medical Conditions Aggravated by Exposure (to dust or fumes)	Pre-existing respiratory or stomach conditions.
Additional Information:	Not listed as a carcinogen by the IARC, NTP, or OSHA. Not reported as a mutagen or with genetic effects. ACUTE TOXICITY – No reported effects

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

4.3.1 No information is available.

5.0 Firefighting Measures

5.1 Extinguishing Media

Suitable extinguishing media	Water, Foam, Dry Chemical, or CO^2
Unsuitable extinguishing media	None known

5.2 Special Hazards Arising from the Substance of Mixture

Fire hazard	Hazardous gases/vapors produced in fire: Carbon monoxide and Carbon dioxide Flashpoint: Not available
Explosion hazard	Solid polymer compounds can be combusted only with difficulty.

5.3 Advice for Firefighters

Protection during firefighting	Keep personnel as removed as possible and upwind of the fire. Wear self-contained breathing apparatus.

6.0 Accidental Release Measures

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

6.1.1 For Non-Emergency Personnel

6.1.1.1 Use only with adequate ventilation. Avoid dust generation.

6.1.1.2 Wear safety glasses. Wear coverall chemical splash goggles and face shield when the possibility exists for eye and face contact with molten material.

6.1.1.3 A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge with dust/mist filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if there are any other circumstances where air purifying respirators may not provide adequate protection. During grinding, sanding, or sawing operations, use a NIOSH/MSHA approved air purifying respirator with dust/mist cartridge or canister if airborne particulate concentrations are expected to exceed permissible exposure levels.

6.1.1.4 If there is the potential for contact with hot/molten polymers or compounds, wear heat resistant clothing, gloves, and footwear. Wear leather or cotton gloves when sawing, routing, drilling, or sanding.

6.1.2 For Emergency Responders

6.1.2.1 Use only with adequate ventilation. Avoid dust generation.

6.1.2.2 Wear safety glasses. Wear coverall chemical splash goggles and face shield when the possibility exists for eye and face contact with molten material.

6.1.2.3 A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge with dust/mist filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if there are any other circumstances where air purifying respirators may not provide adequate protection. During grinding, sanding, or sawing operations, use a NIOSH/MSHA approved air purifying respirator with dust/mist cartridge or canister if airborne particulate concentrations are expected to exceed permissible exposure levels.

6.1.2.4 If there is the potential for contact with hot/molten polymers or compounds, wear heat resistant clothing, gloves, and footwear. Wear leather or cotton gloves when sawing, routing, drilling, or sanding.

6.2 Environmental Precautions: None

6.3 Methods and Materials for Containment and Cleanup

For Containment	Spill, Leak, or Release – Use appropriate personal protective equipment during cleanup. Recover undamaged and minimally contaminated material for reuse or reclamation. Shovel or sweep up.
Waste Disposal	Preferred options for disposal are (1) recycling or (2) landfill – (no components listed under EPA TLCP RCRA), (3) incineration with energy recovery. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state, and local regulations.
Aquatic Toxicity	Negligible solubility Hydrocarbon Oil: Ecotoxicity, LC50 (fish) > 1000 mg/L (low toxicity), Bioaccumulation: Log Pow=> 3.9 - > 6.0. Oil is expected to be slowly biodegradable.

7.0 Handling and Storage

7.1 Precautions for Safe Handling

7.1.1 Avoid breathing dust during compounding or if the compound is ground/powdered.

7.1.2 See **FIRST AID and PROTECTION INFORMATION** sections for additional information.

7.2 Conditions for Safe Storage, Including any Incompatibilities

7.2.1 Shipping: Not regulated – No proper shipping name.

7.2.2 Storage:

7.2.2.1 Store in a cool place.

7.2.2.2 Avoid extreme hot and cold temperature changes.

7.2.2.3 Keep containers closed when not in use.

8.0 Exposure Controls/Personal Protection

8.1 Exposure Limits

8.1.1 Polyolefin Elastomer Resin

8.1.1.1 TLV (ACGIH) – Not applicable

8.1.1.2 PEL (OSHA) – Not applicable

8.1.2 Samarium Oxide Powder

8.1.2.1 TLV (ACGIH) – Not known

8.1.2.2 PEL (OSHA) – Not known

8.1.3 Bismuth Powder

8.1.3.1 TLV (ACGIH) – Not known

8.1.3.2 PEL (OSHA) – Not known

8.1.4 Hydrocarbon Oil

8.1.4.1 TLV (ACGIH) – 5 mg/cu m (ACGIH 2003)

8.1.4.2 PEL (OSHA) – 5 mg/cu m

8.2 Appropriate Engineering Controls – No information available

8.3 Individual Protection Measures, such as Personal Protective Equipment

8.3.1 **See Section 6.1**, **Personal Precautions, Protective Equipment, and Emergency Procedures**

9.0 Physical and Chemical Properties

9.1 Physical State: Solid Pellets or Sheet/Rolls
9.2 Color: Dark Grey
9.3 Odor: None
9.4 Melting Point/Freezing Point: 79°C
9.5 Boiling Point (or initial boiling point or boiling range): Information not available
9.6 Flammability: Negligible
9.7 Lower and upper explosion limit/flammability limit: No information available
9.8 Flash Point: No information available
9.9 Auto-Ignition Temperature: No information available
9.10 Decompression Temperature: No information available
9.11 pH: No information available
9.12 Kinematic Viscosity: No information available
9.13 Solubility: Negligible
9.14 Partition Coefficient n-octanol/water (log value): No information available
9.15 Vapor Pressure (includes evaporation rate): No information available
9.16 Density and/or Relative Density: 4.07 g/cm^3
9.17 Relative Vapor Density: No information available
9.18 Particle Characteristics: No information available

10.0 Stability and Reactivity

10.1 Reactivity: No information available
10.2 Chemical Stability: Stable at normal temperatures and storage conditions. Avoid contact with acidic solutions pH less than 6.0.
10.3 Possibility of Hazardous Reactions, including those associated with Foreseeable Emergencies: No information available
10.4 Conditions to Avoid (e.g., Static Discharge, Shock, or Vibration): No information available
10.5 Incompatible Materials: Xenolite attenuation material is incompatible with vinyl-based products. When the products are touching, the vinyl causes the oils from the Xenolite product to wick or draw out.
10.6 Hazardous Decomposition Products: Decomposes with heat

11.0 Toxicological Information

11.1 Information on the likely routes of exposure (inhalation, ingestion, skin, and eye contact)

11.1.1 See all detailed information under Section 4 – First Aid Measures.

11.2 Symptoms related to the physical, chemical, and toxicological characteristics

11.2.1 See all detailed information under Section 4 – First Aid Measures.

11.3 Delayed and immediate effects and chronic effects from short- and long-term exposure

11.3.1 Chronic effects for each component of the compound are detailed in Section 4.2 – Most important Symptoms and Effects, both Acute and Delayed.

11.4 Numerical measures of toxicity (such as acute toxicity estimates)

11.4.1 Toxicity information, where available, is listed in Section 4.2 – Most Important Symptoms and Effects, both Acute and Delayed.

11.5 Interactive effects: information on interactions should be included if relevant and readily available

11.5.1 No information available

12.0 Ecological Information (Non-mandatory)

12.1 Ecotoxicity (aquatic and terrestrial, where available) – Negligible solubility (aquatic)
12.2 Persistence and degradability – No information available
12.3 Bio accumulative potential – No information available
12.4 Mobility in soil - No information available
12.5 Other adverse effects (such as hazardous to the ozone layer) - No information available

13.0 Disposal considerations (Non-mandatory)

13.1 Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging
13.1.1 See disposal and cleanup methods listed in **Section 6.3 – Methods and Materials for Containment and Cleanup**.

14.0 Transport Information

14.1 UN Number – No information available
14.2 UN Proper Shipping Name - No information available
14.3 Transport Hazard Class(es) - No information available
14.4 Packing Group (if applicable) - No information available
14.5 Environmental Hazards (e.g., Marine Pollutant (Yes/No)) – No information available
14.6 Transport in bulk (according to IMO instruments) - No information available
14.7 Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises. – No information available

15.0 Regulatory Information (Non-mandatory)

15.1 No substance on the state hazardous substances list, for the states listed below, are used in the manufacture of the products on this SDS sheet, with the exceptions listed.
15.2 Pennsylvania
15.2.1 Special hazardous substances > 0.01% - Hydrocarbon Oil
15.2.2 Non-hazardous listed if > 3% - See Components Section

15.3 California
15.3.1 Substances known to the state of CA to cause cancer – Hydrocarbon Oil

15.4 The hydrocarbon oil, a severely solvent-refined paraffinic, is covered by the OSHA Hazard Communication Rule 29, CFR 1910.1200. All chemicals in the oil are TSCA listed: NFPA Rating Health, 0; Fire, 1; Reactivity, 0.

16.0 Other information, including date of preparation or last revision

16.1 See Change History at the beginning of the document.
16.2 The information presented herein has been compiled from information provided to us by our suppliers and other sources considered to be dependable and is accurate to the best of our knowledge and belief but is not guaranteed to be so.